

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



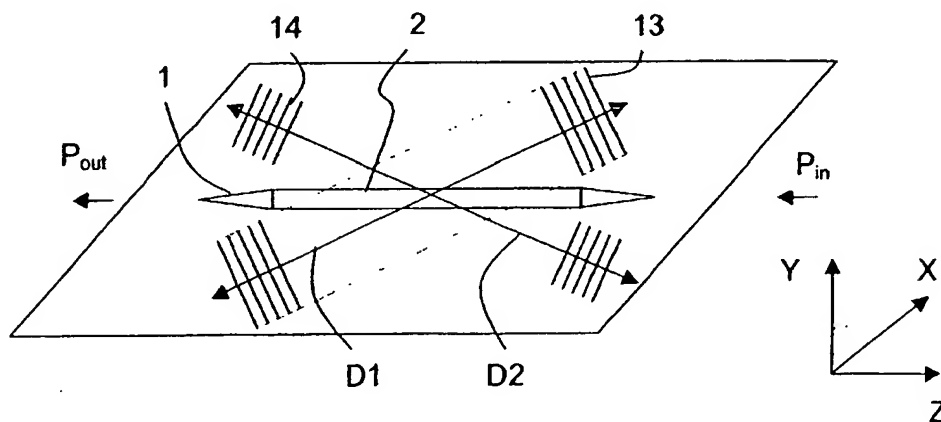
(43) International Publication Date
29 April 2004 (29.04.2004)

PCT

(10) International Publication Number
WO 2004/036702 A2

- (51) International Patent Classification⁷: **H01S 3/00**
- (21) International Application Number:
PCT/IB2003/005041
- (22) International Filing Date: 10 October 2003 (10.10.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0212825 15 October 2002 (15.10.2002) FR
- (71) Applicant (for all designated States except US): **AVANEX CORPORATION** [US/US]; 40919 Encyclopedia Circle, Fremont, CA 94538 (US).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): **DAGENS, Beatrice** [FR/FR]; 20 rue Fondouze, F-92160 Antony (FR). **BRENOT, Romain** [FR/FR]; 70 rue du Faubourg St Martin, F-75010 Paris (FR). **DUAN, Guang-Hua** [FR/FR]; 31, rue Chateaubriand, F-92290 Chatenay Malabry (FR). **HESSLER, Thierry** [CH/CH]; c/o Ecole Polytechnique Federale de Lausanne, Institut De Micro-Et Optoelectronique, CH-1015 Lausanne (CH).
- (74) Agent: **HAINES, Miles, John**; D Young & Co, 21 New Fetter Lane, London EC4A 1DA (GB).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Declaration under Rule 4.17:
— of inventorship (Rule 4.17(iv)) for US only
- Published:
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SEMICONDUCTOR OPTICAL AMPLIFIER WITH LATERAL AND DISTRIBUTED GAIN STABILISATION



(57) Abstract: A stabilised gain semiconductor optical amplifier (CG-SOA) includes and active waveguide (1) comprising an amplification medium (2), extending in longitudinal (Z), lateral (X) and vertical (Y) directions, and coupled to a laser oscillation structure comprising at least two resonant cavities (13, 14) extending in first (D1) and second (D2) directions which are different from the longitudinal direction (Z) of the active waveguide (1) and arranged in such a way as to permit the establishment of laser oscillations having at least two different relaxation oscillation frequencies.

WO 2004/036702 A2